BIOLOGICAL HYDROGEN PRODUCTION FROM PALM OIL MILL EFFLUENT (POME)

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Thesis submitted in fulfilment of the requirements
for the award of the degree of
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STATEMENT OF AWARD FOR DEGREE

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SUPERVISOR'S DECLARATION

We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of degree of Bachelor of Engineering Technology in Energy and Environmental.

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries in which have been duly acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted for award of other degree.

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LIST OF SYMBOLS

$CaCl_2 \cdot 2H_2O$	Calcium Chloride Dihydrate
Cl	Chloride
CO_2	Carbon dioxide
HCl	Hydrochloric acid
H_2	Hydrogen
Fe	Iron
$FeCl_3 \cdot 6H_2O$	Iron(III) Chloride Hexahydrate
$FeSO_4 \cdot 7H_2O$	Iron(II) Sulphate Heptahydrate
g	Gram
g/L	Gram per litre
KH_2PO_4	Monopotassium Phosphate
L	Litre
L·cysteine·HCl·H_2O	L-Cysteine Hydrochloride Monohydrate
mg/L	Milligram per litre
$MgSO_4$	Magnesium Sulphate
$MgSO_4 \cdot 7H_2O$	Magnesium Sulphate heptahydrate
ml	Milli-Litre
$MnSO_4 \cdot 7H_2O$	Manganese Sulphate Heptahydrate
NaCl	Sodium Chloride
NaOH	Sodium hydroxide
Na_2MoO_4	Sodium Molybdate
$(NH_4)_2SO_4$	Ammonium Sulphate

NO_3	Nitrate
SO_4	Sulphate
Zn	Zinc

LIST OF ABBREVIATION

BOD	Biochemical Oxygen Demands
CPO	Crude Palm Oil
COD	Chemical Oxygen Demands
CSTR	Continuous Stirred-tank Reactor
FFB	Fresh Fruit Bunch
GC	Gas Chromatography
GHGs	Greenhouse Gases
NADPH	Nicotinamide Adenine Dinucleotide Phosphate
NPs	Nanoparticles
POME	Palm Oil Mill Effluent
OD	Oxygen Demand
XRD	X-ray Powder Diffraction